SOIL SURVEY OF HENRY COUNTY, ALABAMA.

By GROVE B. JONES, of the U. S. Department of Agriculture, and E. S. PACE, of the Alabama Department of Agriculture and Industries,
Assisted by H. L. WESTOVER.

DESCRIPTION OF THE AREA.

Henry County is situated in the southeast corner of Alabama. It is bounded on the north by Barbour County, on the west by Barbour and Dale counties, on the south by Houston County, and on the east by the State of Georgia. The Chattahoochee River, which forms the eastern boundary, separates the States of Alabama and Georiga and is navigable for steamers the entire distance.

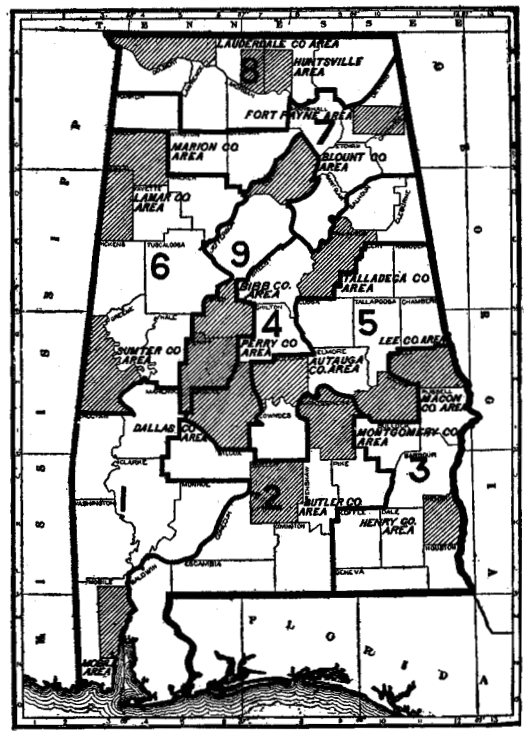

FIG. 11.—Sketch map showing location of the Henry County area, Alabama.

The county embraces an area of 364,800 acres or 570 square miles, and is 32 miles in length, north and south, and 22 miles in width, east and west.

The topographic features are varied. The northern two-thirds constitutes the hilly section and consists of rough, broken, hilly country, with here and there gently rolling areas. Numerous small streams have eroded and gullied this section, imparting to it a choppy contour. "Caves," or holes of considerable depth, with steep perpendicular walls, frequently mark the sources of the streams, which are fed by springs. The southern third of the county is level to gently rolling country, its surface features in some places resembling a dissected plain. A ridge known as "Chunnegee Ridge"

enters the county at County Line Church and continues south through Lawrenceville and Abbeville, below which place it practically terminates. This ridge forms the drainage divide of the waters entering the Chattahoochee River on the east and the Choctawhatchee River on the west. South from Abbeville the drainage divide between these two rivers may be easily determined by following the direction of the Atlantic Coast Line Railroad. In its entire distance of 25 miles not one stream is crossed. The altitude at the Atlantic Coast Line Railroad depot at Abbeville is 499 feet, but it is believed that the highest elevations in the county are found in the northern part. The elevation decreases southward. At Headland the elevation is 409 feet, and at Grimes, about 2 miles south of the Henry-Houston county line, it is 378 feet, and at Dothan 355 feet.

The county is well watered by numerous springs and creeks. The western part is drained by the Choctawhatchee River through its tributaries, Cowpens, Piney Woods, Indian, Poor, and Blackwood creeks. The eastern part of the county is well drained by the Chattahoochee River. Abbie Creek, a stream of considerable size, flowing into this river, drains the central part, while Omusee Creek drains the southern part.

The Choctawhatchee River does not have much fall, and heavy rains cause it to overflow the level strips of country along its tortuous course. The waters not infrequently divide into numerous shallow channels, and a succession of bridges is necessary where the turnpike roads cross this stream. Before the river leaves the county the channel becomes deeper and the adjacent land is not swampy.

Prior to 1819 Henry County formed a part of Conecuh County, but in that year was set aside. It then embraced all the territory now included in Covington, Dale, Coffee, Geneva, Houston, and the greater part of Pike and parts of Crenshaw and Barbour counties. Within a year or two Covington and Pike counties were formed, and a little later Dale and Coffee counties. On February 9, 1903, the southern part of Henry County was cut off to help create Houston, the sixty-seventh county of Alabama.

The county seat was first located at Richmond, now in Dale County. In 1822 it was removed to Columbia, in what is now Houston County, and in 1833 to Abbeville, the present site.

The first white settlers came from Georgia in 1817 and located in the hilly portion of the present county of Henry. For a great many years the southern level portion of the county remained unsettled. It was considered unhealthy, the soil unproductive, and more labor was required to remove the heavy growth of longleaf pine, which at that time had little commercial value.

The population of the county, as at present constituted, is estimated at 18,000. Abbeville, the chief town, is situated in the north-

central part of the county. It is located at the terminus of a branch of the Atlantic Coast Line Railroad, which leaves the main line at Grimes, 27 miles to the south.

The population of Abbeville is estimated to be between 1,500 and 1,800 people. The Southeast Alabama Agricultural School is located at this place. It was the first of the agricultural schools to be established within the State and was founded in 1898.

Headland, in the southern part of the county, has a population of about 1,500 and is the only other town of any consequence. Wells and Capps are shipping points for the territory lying between Abbeville and Headland. Haleburg is a small, prosperous village. Small country stores are plentiful.

The transportation facilities for much of the county are inadequate. The branch of the Atlantic Coast Line Railroad, which enters the county 5 miles southwest of Headland and extends north to Abbeville, has a total trackage of 25 miles within the limits of the county. This road, built in 1902–3, furnishes an outlet for the southern part of the county, but in the northern part facilities are very poor. About 2 miles of the Central of Georgia Railway loops into Henry County in the southeast corner, and furnishes an outlet for this section.

Abbeville is the shipping point for crops produced in the north-central part of the county. In the extreme northern part much of the cotton is sold at Eufaula and a little at Clayton, while for the northeast corner Fort Gaines, Ga., is the market. Headland is the market for the southern part of the county.

In the northern part of Henry County the public roads become very muddy and nearly impassable during the wet winter months, but in dry seasons they are in very good condition, except where deep with sand. In the southern part of the county the roads traverse the more level sandy soils and are good, except during dry seasons, when they become deep with sand, making hauling difficult. Generally speaking, the public roads of the county could be considerably improved with material at hand, the sandy clay subsoil forming an excellent surfacing material.

CLIMATE.

The climate of Henry County is generally mild and favorable to winter crops, a greater variety of which could be conveniently and profitably grown. Although occasional cold snaps of short duration occur, when the temperature may go nearly to zero, snow rarely falls and the soil is seldom frozen more than an inch or two in depth.

The summers are long and hot, absolute maximum temperatures during May, June, July, August, and September ranging from 100° to 104° F.

The rainfall is quite well distributed through the year, although occasional droughts cut some of the crops short. Local thundershowers are of frequent occurrence during the summer.

The following table, compiled from the records of the Weather Bureau station at Eufaula, about 10 miles north of the county line, gives interesting data relating to temperature and precipitation:

Normal monthly, seasonal, and annual temperature and precipitation, etc., at Eufaula.

Month	Temperature.			Precipitation.			
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year.	Total amount for the wettest year.	Snow, average depth.
	°F.	°F.	°F.	In.	In.	In.	In.
January	47	81	12	3.8	3.5	4.3	0.1
February	50	81	−4	6.7	5.6	7.2	0.5
March	59	88	21	6.1	3.9	7.8	0.0
April	66	92	30	2.7	2.3	3.7	0.0
May	74	101	42	3.2	3.1	5.7	0.0
June	79	101	52	3.9	3.7	2.6	0.0
July	81	104	56	6.7	10.2	3.1	0.0
August	80	103	63	5.6	1.9	10.1	0.0
September	76	100	39	3.0	2.0	11.4	0.0
October	66	94	30	2.5	2.7	1.9	0.0
November	54	83	23	2.9	4.0	1.1	0.0
December	49	82	10	4.0	3.4	5.1	0.0
Year	65	104	−4	51.1	46.3	64.0	0.6

The average date of the last killing frost in spring is March 14, and of the first in the fall, November 9. The date of the latest killing frost in the spring is April 1, and of the earliest in the fall, October 25.

AGRICULTURE.

Henry County has no marked agricultural peculiarities. It is in an old and well-established agricultural section of the South, where the crops and practices to-day are practically the same as for many years past.

The wide difference in the topography of the northern and southern parts of the county has resulted in marked differences in the conditions of the farming class. In the north the rough broken surface has invited erosion, and the fields are in many cases washed and gullied. The central and southern parts are more nearly level, and the farming lands in general in much better condition. In the northern sections the farms are nearly all tenanted; in the central and southern sections more of the farmers operate their own farms. A stretch of nearly level country, lying between Headland and Hale-

burg, represents the best developed and most prosperous section of the entire county.

Where the tenant system is followed several methods of rental are in use. The most common is known as "standing rent," whereby the renter agrees to pay a stipulated amount of cotton, usually 1 bale for 25 acres, for the use of the land. Under another form of lease the tenant pays the owner of the land one-third of the corn and one-fourth of the cotton. "On the halves" is a popular plan, especially among the large farmers. Under this plan the owner furnishes the land, stock, feed, and seed and pays for one-half of the fertilizer, the tenant paying for the other half. Cash rent ranges from $1 to $3 an acre.

There are comparatively few tenants in the county with sufficient capital to manage independently their business from one season to the next, and they usually receive assistance from the landholder or merchant who "furnishes" or "advances" necessaries incidental to the growing of a crop, against which the charges stand as a lien.

Under such conditions rented farms soon show outward signs of neglect, and as a rule there is a noticeable decline in crop yields; for the tendency under the tenant system is to grow only the money crop—cotton—year after year. This continuous cultivation to a clean-culture crop, without adding to the soil by rotation or otherwise the humus necessary to keep it in good condition, has impoverished the soil of many once productive farms.

Commercial fertilizer was sparingly used as early as 1860–61, and then discontinued until a later period. At present a considerable quantity is used, consisting mainly of cotton-seed meal, acid phosphate, and potash in a 10–2–2 brand. The fertilizer is applied in the spring before seeding or with the seed by means of a one-horse distributer or by hand, using a tube.

As a result of "the fertilizer law," enacted by the State legislature at its recent session, the quantity of fertilizers sold in the State has been increased from 12 to 14 per cent. This applies to mixed fertilizers, acid phosphates with potash, and plain acid phosphate. The law provides that no mixed fertilizer containing less than 1.65 per cent of nitrogen—equivalent to 2 per cent ammonia—shall be sold in the State. Restrictions are also placed upon the character and quality of cotton-seed meal sold for fertilizing purposes, by the provisions of an act passed at the special session of the legislature in November. As a result of this legislation the quality of the fertilizers found upon the market during the present season has been considerably higher than heretofore, though the increase in plant food is chiefly in the phosphoric acid constituent.[a]

[a] Bulletin No. 24, Alabama Department of Agriculture and Industries.

The crops grown are cotton, corn, peanuts, sweet potatoes, sugar cane, cowpeas, cantaloupes, watermelons, and small quantities of truck and small fruits.

Corn has a large acreage, but it is usually planted on land which has ceased to produce good yields of cotton. The yields of corn, therefore, are not what they should be. Corn is grown solely for feeding on the farm, but only a few farmers produce enough for their own use, and the majority have to buy a whole or a part of their supply at high prices. The acreage devoted to corn could be profitably increased for the purpose of providing feed for the work stock alone, and if the stock-raising industry is to be built up it will be necessary to produce still greater supplies of this valuable feed.

Cotton is to-day, as it has long been, the staple and money crop of the county, and it is grown often to the exclusion of the subsistence crops. Many farmers are compelled to buy corn, oats, hay, and even meat, all of which could be profitably grown in conjunction with cotton, providing for rotation and, through this means, for the improvement of the soil. By systematic and thorough cultivation and seed selection one-third of the land now devoted to cotton can be made to produce as much cotton as the present acreage. The other two-thirds is capable of and should be used for the production of forage, fruits, vegetables, and meat required for home consumption, with some surplus to sell. Cotton is grown in all parts of the county and on each of the several soil types. The wilt disease is quite troublesome in some sections and is especially injurious upon the Norfolk sand and the Norfolk sandy loam. On soils having the red sandy clay subsoils the crop is not so susceptible to this disease.

Oats, mainly rust-proof varieties, are profitably grown, but the acreage is small. Few are thrashed, being fed in the sheaf. The Burt, Red Rust-proof, and Appler are considered good varieties. The "open-furrow" method of sowing oats is in quite general use in the county.

Sugar cane is extensively grown, principally for home use and for the local markets. The horsepower sugar-cane press is to be found on the average farm. The crop is usually planted on small areas of bottom land or in depressions in the other types of soil.

Peanuts occupy a relatively large acreage, from 12,000 to 15,000 acres. They are frequently planted with corn, one row of peanuts and two rows of corn. Peanuts yield from 40 to 75 bushels per acre, and as many as 115 bushels per acre are sometimes produced. They sell for $1.25 a bushel wholesale and for $1.50 retail. Peanut-vine hay yields from two-thirds ton to 1 ton per acre and brings from $15 to $18 a ton, baled.

One farmer near Headland plants from 50 to 75 acres in peanuts each year, and finds them a very profitable crop. From 55 acres of

peanuts he last year sold $600 worth of nuts, $450 worth of hay, and fattened $750 worth of pork, an average of $32.73 per acre. Besides this he had a splendid volunteer stand of peanuts this year, from which he expects to realize at least one-half ton of hay per acre, besides fattening a large drove of hogs.

The Spanish peanut is grown. This is a much earlier variety than the North Carolina peanut. Planted in March it is suitable for hog pasture by August 15.

The bulk of the peanut crop is not harvested in the usual way, but hogs are turned into the fields and allowed to eat the nuts. This practice is a very common method of fattening hogs. The acreage of peanuts could be very profitably increased, as the nuts and hogs are all sold in local markets and the supply falls far short of the demand.

More attention is being given to the raising of hogs for home consumption and local markets. There is always a strong demand for pork and it can be produced very cheaply. A few farmers kill as many as 100 hogs a year, all of which go to supply the home markets. Every farmer should produce a little meat for sale. Vetch, rape, and winter cereals will produce an abundance of winter grazing for hogs and other stock.

Alfalfa is without doubt the most valuable of the hay crops, and is suited to every class of stock. It has strong feeding qualities, produces heavy yields, and is a splendid soil renovater. The upland soils of the county are as a rule not adapted to alfalfa, but the Cahaba clay is undoubtedly well suited to this valuable crop.

Alfalfa requires a strong, well-drained soil with the water line at least 2½ feet from the surface. Thorough preparation of the soil and careful management in the early stages are necessary for securing the best results. It does best on inoculated soils. After thoroughly preparing the ground add about 400 pounds of soil from an alfalfa field and 200 pounds of bone meal. Drill in 25 pounds of alfalfa seed to the acre in rows 20 inches apart. October or November is the time to plant. From 3 to 5 cuttings can be made each year.

Hairy vetch grown with some of the winter cereals, oats or rye, makes a very good quality of forage. In September or October it will be found profitable to sow broadcast a mixture of rye or oats and hairy vetch, equal parts, in the cotton field. As these are winter crops, they will furnish winter grazing and may be cut for hay or turned under in the spring, thus adding humus in the form of "green manure."

While the importance and necessity of crop rotation is recognized by the majority of farmers, little attention is given to this practice, or to increasing the productiveness of the soil. Some of the best farmers make an attempt to rotate crops, but no system is followed on account of the large acreage of cotton. When any rotation is

attempted the common practice is to grow cotton from two to three years, followed by corn from one to three years. This system of rotation is the simplest and best suits the man who does not wish to keep live stock. The clean-culture summer crops, cotton and corn, rapidly exhaust the humus in the soil, and should be followed by some winter-growing legume such as vetch or bur clover. This would provide an abundance of excellent winter feed for the farm animals and at the same time increase the producing capacity of the soil by adding nitrogen, at a great saving in the amount expended for commercial fertilizers. More satisfactory rotations involve the use of a greater diversity of crops, and cotton is made more of a surplus crop and the income is distributed over a greater part of the year. The following rotation is recommended: Cotton the first year; corn and cowpeas and winter oats or rye and vetch the second year, followed by cotton the third year.

Dairying is carried on in a limited way in the southern part of the county and some good stock is kept.

The opportunities for developing the dairy business in Henry County are very good. Pasture may be had for the greater part of the year and a great variety of forage crops can be cheaply produced. In a country so dependent on outside help to fertilize the soils dairy farming will be found highly beneficial. It distributes the income from the farm quite evenly throughout the year.

Besides supplying the home markets, first-class dairy products are in constantly increasing demand and good markets could be found in the near-by towns and larger cities.

Cattle and sheep raising in the early years was an important industry, but now there are relatively few cattle and not over 100 head of sheep in the county.

The data as furnished by the United States Census of 1900 apply to Henry County before it was divided and have no real value in this report. The estimates herein given have been gathered from the most reliable private sources.

The size of farms varies from 40 acres to a thousand or more, but farms of several hundred acres are most common. The larger holdings are to be found in the northern and middle parts of the county. The average size is probably 160 acres. From 20 to 50 per cent of the farms are operated by the owners. Rail and more recently wire fences are used when inclosures are needed, but for the most part fencing is unnecessary.

Except in the case of the smaller farms, where the farmer and his family do the work, most of the farm labor is performed by negroes. Wages range from $10 to $15 a month with board. For chopping cotton this year (1908) 65 cents an acre was the price usually paid,

the hand boarding himself. Day laborers receive from 75 cents to $1 a day.

The saving effected by modern machinery is gradually becoming recognized. Cotton planters, cultivators, fertilizer distributers, and manure spreaders were noticed upon the farms of a few of the more progressive farmers. The gasoline engine is used by enterprising farmers for ginning, grinding, and sawing purposes. The saving by this power over horse, man, or steam power is estimated to be from 20 to 50 per cent.

Small water-power mills along many of the small streams gin the cotton and grind the grain for their respective localities. Considerable water power could be profitably developed on Abbie Creek along the last few miles of its course.

The price of land has increased greatly within the last few years, in some sections from 25 to 200 per cent. The best lands convenient to the railroad sell at $15 to $50 an acre. Lands in the northern part of the county bring from $8 to $15 an acre, while the Norfolk sand may be had for $5 to $10 an acre. The river-bottom soils range in price from $10 to $25 an acre, the Cahaba clay commanding the highest price.

The year 1908 marked the beginning of the growing of cantaloupes and watermelons in Henry County upon a commercial scale. The new industry is at present confined to the southern part of the county, principally near Headland, where several farmers cultivated an area aggregating 170 acres of cantaloupes and 270 acres of watermelons. The fields ranged in size from 5 to 40 acres in the case of cantaloupes and from 10 to 125 acres in the case of watermelons.

It costs from $11 to $16 an acre to produce cantaloupes, depending upon the quantity of fertilizer used. Cantaloupes are planted the first part of March and are ready for the market by June 10. They are shipped in crates which hold 45 of the standard size melon or 54 of the "pony size." The Rockyford is almost exclusively grown.

By organizing and shipping in carload lots the growers have secured fairly suitable rates and facilities. The first shipment of cantaloupes was made to Pittsburg June 12. Prices ranged from $1.50 to $2.50 a crate during the present season. The first shipment of watermelons was made June 18, and as a rule fairly good profits were received from the crop. Besides producing a crop of cantaloupes, some growers made the land produce a crop of cowpeas and a crop of hay.

The 1st of May, or two months after the cantaloupes are planted, cowpeas are sown between the rows and one cultivation given them about a week or two later. After the peas ripen they are cut and thrashed for seed, the yield ranging from 10 to 20 bushels per acre. The yield of peavine hay is one-half ton to 1 ton per acre. By Sep-

tember a volunteer crop of native grasses can be harvested, from 1 to 2 tons of hay per acre being secured.

The trucking industry, if systematically developed, will, without doubt, prove a source of a large income to the county. The success attained this year will doubtless result in a considerable increase in the acreage devoted to these crops and also act as an incentive for growing other highly profitable truck crops.

Peaches do well in this part of the State, but there are few grown, and little attention is given the trees. With proper methods peach growing on a commercial scale might prove remunerative. The Orangeburg sandy loam is well adapted to the peach, and upon a soil similar to it in central Georgia the peach industry has been very successfully developed.

Notwithstanding that there is quite a wide range in both the texture and topographic position of the soils of Henry County, offering unlimited opportunities for diversification and specialization of crops, few have recognized this fact. Diversification offers the most potent means for the improvement and permanent upbuilding of the soils. It will make possible the rotation of crops, with the inclusion of legumes as a matter of course, and this will favor the keeping of more live stock, an important factor in keeping farm lands in the best possible condition. With the introduction of new crops, the necessity for improved machinery of various types will become more obvious, and its use will greatly increase the producing power of the soil. Thus the future development of the county agriculturally depends upon diversification. A movement in this direction has already been started, and there is every reason to believe that conditions in the county will show great improvement in the next decade.

SOILS.

Henry County is located within the Gulf region of the physiographic province of the United States known as the Coastal Plain, the soil materials of which region were laid down either beneath the water or along the margins of an ancient sea which one time covered this general plain region. In Henry County the Lafayette formation for the most part has contributed the material giving rise to the soils.

In a general way the northern half of the county represents the hilly section of the State. It is underlain by the characteristic stratum of compact red sandy clay of varying depth, which gives rise to the Orangeburg series. At Clayton, in Barbour County, to the north, well borings disclosed the red clay to be about 40 feet in thickness. Underlying this red stratum was found 80 feet of yellow clay resting upon 90 feet of blue marl.

The Orangeburg, Norfolk, and Susquehanna series occur in this section of the county, the former predominating. Quartzite gravel in small deposits occurs in this formation, being so abundant in local areas as to give rise to two distinct types of soil—the Orangeburg gravelly sandy loam and the Norfolk gravelly sandy loam.

The materials left upon the recession of the sea have been variously modified by processes of weathering, particularly erosion and chemical change, which have given rise to the several types of soil. In some places the fine soil particles have been washed out and carried off by wash, leaving deep layers of sand; in other instances the finer materials have been translocated from the surface portion to the lower portion by the percolating action of rain water, leaving soil types with light surface soils and heavy subsoils; while again the oxidation and hydration of the chemical components, especially iron, has given rise to variety in color. Poor drainage conditions have caused the accumulation of dark-colored organic matter in soils, giving rise to the dark-colored types.

The Norfolk soils with their characteristic yellow subsoils predominate here, although level areas of a red sandy loam (Greenville sandy loam) occupy a considerable extent of territory. The characteristic red material forming the subsoil of the Orangeburg series when present in this section of the area occurs only as a thin stratum overlying the yellow sandy clay.

The Greenville sandy loam is derived from the Lafayette material, and apparently differs from the Orangeburg mainly in the reddish color and higher content of fine material in the soil portion.

The Susquehanna clay, characterized by its mottled, plastic subsoil, is derived from material deposited over the older underlying Cretaceous and beneath the strata giving rise to the Orangeburg, Norfolk, and Greenville series.

Along the larger streams and extending back from their courses to altitudes up to 100 feet occur gray sands, which have been mapped as Norfolk sand.

The soils bordering the Chattahoochee River are alluvial in origin and belong to the recent age, consisting mainly of material transported from the Piedmont section to the north. These deposits have given rise to three members of the fertile Cahaba series, which occurs as terrace soils along several of the larger Alabama streams. The types on the higher terraces are now either above overflow or subject only to occasional inundation at very high water.

The alluvium or Swamp consists mainly of the washings of the upland and varies in texture from a sand to a clay mixed with a considerable amount of vegetable matter. This low-land material is subject to extremely poor drainage conditions.

The following table gives the names and extent of the several types of soil:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Norfolk sand	128,768	35.3	Norfolk gravelly sandy loam	2,816	0.8
Orangeburg sandy loam	85,888	23.6	Cahaba fine sand	2,816	.8
Norfolk sandy loam	42,688	11.7	Norfolk fine sandy loam	1,024	.3
Orangeburg sand	37,312	10.2	Cahaba sandy loam	960	.2
Swamp	30,720	8.4	Portsmouth sandy loam	704	.1
Greenville sandy loam	19,200	5.4	Ocklocknee loam	640	.1
Cahaba clay	4,800	1.3			
Susquehanna clay	3,264	.9	Total	364,800	
Orangeburg gravelly sandy loam	3,200	.9			

ORANGEBURG SANDY LOAM.

The surface soil of the Orangeburg sandy loam consists of a gray, brown, or reddish-brown sandy loam from 12 to 20 inches deep. The subsoil is a red or reddish-yellow sandy clay, the color corresponding to the shades of the soil. The red sandy clay is underlain by mottled clay and cross-bedded sands at various depths ranging to 20 feet.

In the northern part of the county the surface soil of the Orangeburg sandy loam is somewhat lighter in color and texture, being a gray or light-brown sand or light-textured sandy loam, resting upon a reddish-yellow clay formation.

In this broken section the subsoil is heavier and when wet is plastic, the percentage of sand being less and consisting of the finer grades. Frequently considerable silt and finely divided mica scales are contained in it. On the slopes the soil is shallow or in many cases lacking, while on the less rolling areas the soil is deeper. The line of contact of the soil and subsoil is sharp.

Except in the section just described, the surface soil is a brown or reddish sandy loam with an average depth of 15 inches, underlain by a very red sandy clay. Both soil and subsoil contain small iron concretions. The greater part of the Agricultural School experiment farm, at Abbeville, is located upon this type of soil.

The Orangeburg sandy loam is found throughout the county, but principally in the northern two-thirds of the county. The most extensive area is in the northern part, the area stretching northward into Barbour County. The soil is usually associated with the Norfolk sandy loam or Norfolk sand.

The soil is found at all elevations, and for the most part the surface is hilly to rolling, with some few undulating areas. On account of its topography the natural drainage is very good. In places the drainage is excessive, and here much of the surface soil has been

eroded away, exposing the underlying red clay and even the deeper mottled strata.

The Orangeburg sandy loam owes its origin to the Lafayette formation. It is considered the best upland soil for general farming and an especially strong cotton soil. The average yield ranges from one-third to two-thirds bale per acre, with an application of about 200 pounds per acre of complete fertilizer. By more careful methods a few growers secure a yield of 1 bale per acre.

Corn with 100 pounds of fertilizer yields from 12 to 20 bushels per acre. Oats produce well, and when planted by the "open furrow" method withstand the severest freezes with little or no injury. The yield is estimated at 15 to 30 bushels per acre.

The Orangeburg sandy loam is especially well adapted to the production of Cuban filler tobacco, and upon the same kind of land in Florida the growing of this type of tobacco has been very successful. The filler leaf is grown in the open. The yield ranges from 600 to 800 pounds per acre, and the leaf brings from 20 to 25 cents per pound, depending upon the quality.

The methods of cultivation practiced upon the Orangeburg sandy loam are frequently inadequate to secure the best results. Deeper plowing should be generally practiced, a depth of at least 10 inches being desirable. By more careful and thorough preparation of the soil and systematic crop rotation, including some of the legumes, the productiveness of the Orangeburg sandy loam could be greatly increased. Much of it supports a forest of pine, hickory, and oak. Land of this type of soil can be had for from $10 to $30 an acre, depending upon the location.

The following table gives the average results of mechanical analyses of samples of this type of soil:

Mechanical analyses of Orangeburg sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18799, 18801.....	Soil.....	1.8	14.9	13.7	32.1	14.3	15.3	7.7
18800, 18802.....	Subsoil.....	.6	8.3	5.5	18.3	9.2	17.8	40.2

ORANGEBURG GRAVELLY SANDY LOAM.

The surface soil of the Orangeburg gravelly sandy loam is a brownish-gray or reddish-brown, medium to coarse sandy loam from 6 to 12 inches deep, containing from 15 to 60 per cent of gravel. The subsoil is a heavy red sandy clay carrying a small percentage of iron concretions, but usually no gravel. The gravel consists mainly of

waterworn quartzite pebbles, ranging from one-half inch to 3 inches in diameter. There are also present in the soil small iron concretions in varying quantities.

The surface is thickly strewn with this gravelly material, and the gravel content is not usually mixed with the soil, as in the case of the Norfolk gravelly sandy loam. The surface of the crystalline gravel is stained brown and red by iron salts, but the inside of freshly broken fragments is usually white, rose, or purplish in color.

Areas of the Orangeburg gravelly sandy loam are scattered through the rolling section of the county, and the soil is most typically developed in the vicinity of Abbeville. The areas are small and occupy ridges, knolls, slopes, and now and then gently rolling stretches. The soil is closely associated with the Orangeburg sandy loam, and is practically the same soil with the gravel content added. It also occurs associated with the Norfolk gravelly sandy loam, and a definite boundary between these two types is often difficult to establish, practically the only difference between the two being the color of the subsoil, which grades imperceptibly from the one to the other.

The surface features of this soil give it excellent drainage, while the gravel content tends to conserve moisture by preventing evaporation.

An area north of Capps forms the one variation found in this soil. It differs from the typical soil in that the gravel, instead of being waterworn quartzite pebbles, consists of square angular fragments of chert, derived from a hard flinty limestone known as the Knox dolomite.

The Orangeburg gravelly sandy loam is derived mainly from the Lafayette formation. The quartzite gravel and the other rock fragments are evidence that the material was originally transported from the Piedmont Plateau.

Crop yields on this soil are about the same as upon the Orangeburg sandy loam. It is a strong soil and nearly all under cultivation. It is almost invariably planted to cotton. Peaches would undoubtedly do well. The native forest growth consists chiefly of longleaf pine, oak, and hickory.

The following table gives the results of mechanical analyses of this type of soil:

Mechanical analyses of Orangeburg gravelly sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18809	Soil	2.9	15.5	16.9	35.4	8.6	12.0	8.7
18810	Subsoil	2.0	11.9	9.8	29.7	6.3	13.3	26.8

ORANGEBURG SAND.

The Orangeburg sand consists of a dark-gray or brownish, medium to fine loamy sand, from 6 to 15 inches deep, underlain by a red sand or light-textured reddish sandy loam to a depth of 36 inches. In some places this red material, near the bottom of the soil section, changes in texture to a sandy clay, closely resembling the subsoil of the Orangeburg sandy loam.

This type occupies gently rolling areas, and as found in Henry County occurs in two distinct phases. The phase above described represents the heavier, stronger soil and is nearly always found associated with the Orangeburg sandy loam. The lighter phase occurs very closely associated with the Norfolk sand and differs from it only in one respect, the color of the deeper subsoil.

The soil is a gray or light-brown medium to fine loamy sand, with an average depth of about 12 inches. Underlying the top soil is a yellow or gray sand of similar texture but less coherent, owing to the absence of organic matter. This yellow sand changes to a red sand at varying depths, depending upon the depth of the surface soil, the stratum of yellow sand, and the proximity to areas of Orangeburg sandy loam.

In extent of area the two phases of the Orangeburg sand are about equal, the heavier phase being principally confined to the northern part of the county. Areas occur scattered throughout the county. The larger bodies are found west of Abbeville and east of Wells. Areas of this soil, when found occupying a position between the Orangeburg sandy loam and the Norfolk sand, often represent a gradation from one to the other, and hence are not uniform in depth. The greater depth to the red material distinguishes the sand from the Orangeburg sandy loam, while the red color if within 3 feet separates it from the Norfolk sand. The fine grades of sand predominate, but to the north and northeast especially the proportion of coarser grades is greater. The soil may contain some small iron concretions, but these are never very numerous. Small mica fragments are also sometimes present.

The Orangeburg sand, occupying as it does gently rolling country, is a well-drained soil. Erosion has formed deep gullies in some places, exposing the red sandy material to considerable depth.

In origin the Orangeburg sand is traced to the sands and clays of the Lafayette covering. The lighter phase evidently represents materials which have not suffered so much weathering as the Norfolk sand.

Most of this soil is under cultivation, being planted to the staple crops—corn and cotton. The heavier phase produces yields which favorably compare with those produced upon the Orangeburg sandy loam. The sandier phase is not so productive, especially in droughty

seasons; still, fair yields are the average. Corn yields from 10 to 12 bushels per acre on this light phase and is more profitable than cotton. As a whole the type is more productive than Norfolk sand, and cotton grown upon it is less susceptible to disease. The Orangeburg sand is naturally suited to truck crops, and all kinds of vegetables and small fruits do exceptionally well.

Like the Norfolk sand, the Orangeburg sand under cultivation soon becomes deficient in humus, and cultural methods should be directed toward the addition of organic matter and the conservation of moisture.

The native timber growth consists of oak, hickory, sweet gum, and pines.

The following table gives the average results of mechanical analyses of samples of this type of soil:

Mechanical analyses of Orangeburg sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18805, 18807.....	Soil.....	3.7	26.1	24.9	32.7	3.5	5.2	3.9
18806, 18808.....	Subsoil.....	4.5	22.1	22.3	35.1	3.7	4.4	7.8

NORFOLK SANDY LOAM.

The Norfolk sandy loam soil consists of a dark-gray or light-brown sandy loam from 10 to 15 inches deep. The sand consists of medium and fine grades, with varying quantities of small iron concretions and ironstone pebbles. The subsoil is a yellow sandy clay or heavy sandy loam, which extends to a depth of 36 inches or more.

Easy to cultivate and having an open structure, which permits of free movement of moisture, this soil is a warm, early type. As found in Henry County it has incorporated with it a relatively high percentage of humus, which imparts a darker color and makes it more loamy in texture, qualities which the type does not usually possess to such a marked degree. It is therefore more productive, more retentive of moisture, and more responsive to fertilization than in many other areas where it has been mapped.

The principal bodies occur in the extreme northeast corner of the county, at Capps and Wells. Other areas of less extent occur in all parts of the county.

The Norfolk sandy loam occupies level to gently rolling areas, which are well suited for cultivation.

The natural drainage is good, owing to topography and light texture. A few small, low-lying areas, adjacent to streams, principally in the northwestern part of the county, would be greatly benefited by artificial drainage. These flat areas have a shallower and darker

colored surface soil, a higher organic matter content, and a more loamy texture. The subsoil also contains less sand than is found in the typical areas, and in general is a rather heavy yellow clay.

The Norfolk sandy loam owes its origin to the Lafayette formation, being the weathered product of the sands and clays of this extensive Coastal Plain formation.

The soil is naturally productive and is well suited to the growing of the general farm crops, corn, and cotton. Corn yields from 10 to 20 bushels, cotton from one-fourth to one-half bale, and oats from 10 to 25 bushels per acre.

Bermuda grass makes splendid pasture. Peanuts, cowpeas, and some sorghum are grown as forage crops. Velvet beans, vetch, and rye grow readily and should be added to the forage crops now produced. The first two of these crops add nitrogen to the soil and all three tend to improve its productiveness by replenishing the supply of organic matter, opening the structure, and increasing the capacity for retaining moisture. Alfalfa has been successfully grown upon Norfolk sandy loam in other sections of the south by inoculating the soil. This may be done by applying soil from an old alfalfa field.

Upon the Norfolk sandy loam in Florida and Georgia Sumatra wrapper leaf tobacco is being grown to some extent under shade. It is believed that this industry could be successfully introduced in Henry County, since the climatic conditions are very similar to those of the districts where the industry has been a success. For producing the best quality of leaf those areas should be selected in which the texture of the soil is rather fine and the depth to the clay not less than about 10 inches, nor greater than 20 inches.

For the upbuilding of this soil and the maintenance of humus and natural productiveness, deeper plowing, crop rotation, and the growing of more leguminous plants are recommended.

The price of the Norfolk sandy loam ranges from $10 to $25 an acre, except at Headland, where $50 and more is asked. Most of the type is cleared and cultivated.

The original timber growth consists of pine, oak, sweet gum, and hickory.

The following table gives the average results of mechanical analyses of samples of this soil type:

Mechanical analyses of Norfolk sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18783, 18785.....	Soil.....	2.4	17.7	14.8	27.9	11.2	19.1	6.6
18784, 18786.....	Subsoil.....	1.1	14.6	13.1	26.1	11.2	16.0	17.8

NORFOLK GRAVELLY SANDY LOAM.

The surface soil of the Norfolk gravelly sandy loam is a brown or dark-gray gravelly sandy loam from 10 to 15 inches deep. The sand particles are medium to fine in texture, and form a matrix in which the rounded pebbles are generally evenly mixed.

The gravel consists of waterworn quartzite pebbles, ranging from one-eighth of an inch to 3 inches in diameter. As much as 50 per cent of gravel is found in the soil in some places, while varying quantities of the gravelly material are strewn upon the surface.

The subsoil is a yellow sandy clay also containing quartzite gravel to a depth of 2 feet, although there is less of such material in the subsoil than in the soil. In some places little may occur, while in others it may be scattered through the clay in veins or pockets.

Areas of Norfolk gravelly sandy loam, which is not an extensive type, are found chiefly in the east-central part of the county and to the south of Murphree. None occurs in the northern or northwestern part of the county. The soil is closely associated with the Norfolk sandy loam and Norfolk sand. It bears practically the same relation to these two soils as does the Orangeburg gravelly sandy loam to the sandy loam and sand of the Orangeburg series.

The Norfolk gravelly sandy loam occurs as rounded ridges, slopes, and gently rolling areas of small extent. The soil is well drained, and its texture makes it early and easily cultivated. It is derived from the Lafayette mantle.

Cotton is the principal crop, the yields ranging from one-third to one-half bale per acre, and land of this type of soil is nearly all under continuous cultivation to this crop. Originally the soil supported a mixed forest of pine and hardwoods.

The following table gives the results of mechanical analyses of this type of soil:

Mechanical analyses of Norfolk gravelly sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18789	Soil	4.9	17.8	16.8	36.2	7.0	11.6	5.6
18790	Subsoil	3.6	14.5	9.9	24.7	4.7	10.8	31.9

NORFOLK FINE SANDY LOAM.

The surface soil of the Norfolk fine sandy loam consists of a fine sand or fine sandy loam, the upper layer usually darkened by the presence of organic matter, but grading into a yellowish color. In depth it varies from 10 to 34 inches, with an average of about 22 inches. The subsoil is a bright yellow sandy clay, or heavy sandy

loam, the sand grains being usually somewhat coarser than in the soil. As mapped in Henry County the type includes a few very small areas of poorly drained silt loam.

The Norfolk fine sandy loam is of minor importance, as only five bodies, less than 2 square miles in all, were mapped. All of these are found in the southeast part of the county, in the third bottom of the Chattahoochee River.

With the exception of a few small depressed areas the Norfolk fine sandy loam has excellent surface drainage, the soil itself being of such a loose texture that water readily percolates through it. On the other hand, the sandy clay subsoil is capable of retaining a considerable supply of water during extended periods of dry weather, with the result that crops withstand droughts very well.

Like the other Norfolk soils, the Norfolk fine sandy loam is derived from the sands and clays of the Lafayette formation. The land was originally covered with a forest of longleaf and shortleaf pine, blackjack oak, and white oak, but most of the timber has been removed, and at present practically all of this soil is under cultivation. Although the texture is too light for the best results in general farming, it is well suited to a wide range of agricultural products, and especially to truck crops.

At the present time cotton and corn are the only crops grown to any extent. Cotton yields from one-fourth to one-third bale and corn from 10 to 12 bushels per acre.

The Norfolk fine sandy loam, with a depth of from 10 to 20 inches to the subsoil, is the land on which the best Sumatra cigar tobacco is produced in Florida and Georgia.

The following table gives the results of mechanical analyses of the soil and subsoil of the Norfolk fine sandy loam:

Mechanical analyses of Norfolk fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18787	Soil	2.0	8.7	8.0	25.5	22.8	25.1	7.6
18788	Subsoil	.8	12.1	12.4	23.9	19.3	15.8	15.4

NORFOLK SAND.

The surface soil of the Norfolk sand consists of a gray or light-brown sand from 10 to 15 inches in depth. The sand is composed mainly of medium to fine rounded quartz grains, with frequently a small percentage of coarse, angular grains. The soil contains a relative high percentage of organic matter, which, together with considerable fine material, makes it somewhat loamy in texture. For

this reason, taken as a whole, it is more loamy and productive than the typical soil as mapped in other areas.

Nowhere in the county is the type found in any extensive areas having a loose, incoherent, sandy soil. Occasionally a sprinkling of quartz pebbles, the size of a pea or larger, is found. This condition is not general and is usually found along some of the slopes adjacent to small streams. This gravelly phase is shown on the map by means of the gravel symbol.

The subsoil consists of a yellowish or light-gray sand of a texture similar to the soil, though with a more open structure. Varying quantities of coarse, angular quartz grains also occur in the subsoil.

The Norfolk sand covers about 35.3 per cent of the county and is the most widely distributed of the soils. The surface features vary from rolling to undulating, the areas occupying hills, ridges, slopes, and narrow valleys. It is a thoroughly drained soil. Its comparatively porous texture causes it to dry out in early spring, and the high content of organic matter, together with the relatively high percentage of fine material, makes it a warm, early soil. In some places excessive drainage often causes crops to suffer from drought. This is particularly the case where the soil is deepest and leaching of the organic matter has taken place. Sedimentary in origin, the Norfolk sand has been derived through weathering from the Lafayette mantle. Some areas have been reworked more or less by water and wind action.

The largest areas occur along Abbie Creek and its tributaries, in the eastern part of the county. Other areas along the Choctawhatchee River, Poor Creek, and the bluff of the Chattahoochee River are of considerable size. Areas of less extent occur generously distributed throughout the county.

At present much of the Norfolk sand area is covered with a growth of longleaf and shortleaf pine, oak, sweet gum, and hickory.

The Norfolk sand is naturally adapted to truck growing. Peas, beans, radishes, lettuce, collards, sweet potatoes, cantaloupes, watermelons, strawberries, etc., do exceptionally well. However, as the local market for truck is limited and the growing of such products for distant markets is but little developed, most of this soil at present under cultivation is devoted to general farming.

Cotton, corn, oats, peanuts, cowpeas, and sweet potatoes are the chief crops, with fairly good yields in favorable seasons. Corn yields from 8 to 12 bushels, cotton about one-third bale, and oats 12 to 18 bushels per acre. Bermuda and crab grass give good pasturage, and in some cases are cut for hay. New ground of this soil produces somewhat better yields than those stated. After the first three years, unless properly cared for and the content of organic matter maintained, the yields decrease rapidly.

In order to increase or even to maintain the productiveness of this soil the growing of legumes or other green manuring crops is necessary and should be more extensively practiced. To this end the annual growth of grass and weeds should not be burned off, but wherever practicable should be turned under and allowed to decay in the soil.

The Norfolk sand sells from $5 to $12 an acre, according to location and the state of improvements.

The following table gives the average results of mechanical analyses of samples of this type of soil:

Mechanical analyses of Norfolk sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18791, 18793.....	Soil.....	3.4	20.0	24.5	36.9	5.1	7.2	2.8
18792, 18794.....	Subsoil.....	2.9	18.2	24.4	38.6	4.6	8.3	2.9

CAHABA CLAY

The Cahaba clay consists of 1 to 4 inches of grayish-brown silty fine sandy loam, underlain to a depth of 36 inches by a stiff red or reddish-brown clay, sometimes slightly streaked and mottled with yellow. Below 36 inches the subsoil becomes lighter in texture, owing to increasing amounts of very fine sand. The subsoil has a peculiar greasy feel, the result of small mica flakes which are present in large quantities. Considerable areas in this type have the clay subsoil exposed at the surface, and in fact little of the type has as much as 4 inches of soil. In poorly drained depressions the surface soil is darker and decidedly silty.

The Cahaba clay is found entirely on the second bottoms of the Chattahoochee River. It is the most important river-bottom type in the county, as it occupies at least three-fourths of the bottom-land area. The largest bodies are found in the vicinity of and a few miles south of Franklin, where occur areas 2 or 3 square miles in extent. The surface is usually level to undulating, with sufficient slope to insure good drainage.

Alluvial in origin, the Cahaba clay occupies the larger part of the second terraces of the Chattahoochee River. It lies from 30 to 40 feet above the low-water mark of that stream, and is subject to overflow not more than once in ten or fifteen years. The clay subsoil was probably brought down from the Piedmont Plateau and deposited in deep, quiet water during a period of submergence. The soil is of later origin, being derived in part from the adjacent uplands.

This soil was originally covered with a growth of shortleaf pine, gum, and oak, but this has been removed, and at the present time practically all of the area is under cultivation.

Owing to its stiff, plastic nature and tendency to bake it is a difficult soil to till, but when properly handled it is the best of the river-bottom soils, and one of the most productive soils in the county. Oats and hay do better than on any other soil. Cotton, with but little fertilization and indifferent cultivation, produces one-half bale per acre. With very little extra expense and effort it would produce 1 bale per acre. Corn gives 15 to 20 bushels per acre under similar treatment, and the yields could easily be doubled.

While the Cahaba clay is more productive than the sandier soils, still it suffers more severely from drought. Possessing naturally a higher moisture content than the sandier soils, its liability to drought must be traced to the shallow plowing and insufficient cultivation. In the majority of cases the soil is not broken deeper than 2 to 4 inches, thus barely reaching through the surface sandy layer. If the land were plowed deeper, permitting the plants to develop a better root system, it would probably withstand the drought better than the sandier soils.

In value the Cahaba clay is somewhat higher than the other river-bottom soils, the prices ranging from $20 to $25 an acre.

The results of mechanical analyses of samples of this type of soil are given in the following table:

Mechanical analyses of Cahaba clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18773	Soil	0.4	1.0	1.1	21.9	30.8	36.2	8.2
18774	Subsoil	.2	1.6	1.3	14.2	11.3	37.8	33.4

CAHABA FINE SAND.

The Cahaba fine sand consists of 10 to 12 inches of grayish-brown loamy fine sand, underlain by a reddish-brown or, in some cases, a dull-red loamy fine sand reaching to a depth of 36 inches or more. Below this and somewhere between 36 and 40 inches is a layer of stiff reddish-brown clay, having that greasy feel so peculiar to the Susquehanna soils. Small mica flakes are found in both soil and subsoil, but are much more abundant in the latter. Being of a loose, porous nature and well drained, this type is easily cultivated.

The Cahaba fine sand is confined entirely to the second bottoms of the Chattahoochee River, where it usually occurs as long, narrow sand

ridges in larger bodies of Cahaba sandy loam or Cahaba clay. The largest bodies occur in the vicinity of Franklin.

As a whole, the soil is comparatively level, but on account of the loose, porous nature of both soil and subsoil the type retains moisture poorly, and as a result crops do not withstand periods of dry weather as well as on the other river soils.

The Cahaba fine sand probably owes its origin to water action, which resulted in the formation of the second bottom terraces during the Pleistocene period.

At the present time practically all of this soil is cleared and under cultivation. It was formerly covered with a growth of shortleaf pine, oak, sweet gum, and poplar. It is utilized chiefly in growing peanuts, to which it seems to be admirably suited. The crop is not harvested, but in the fall the pigs are turned on the land and allowed to gather the peanuts for themselves. Cotton, corn, and oats are grown to a very limited extent, but the yields are rather light. Cotton yields one-fourth bale per acre and corn 7 to 8 bushels. As the oat crop is not thrashed, no definite figures can be given.

The fertilizer application, as with all other soils of the area, is from 200 to 300 pounds per acre.

This soil is especially in need of organic matter and would be greatly benefited by the application of barnyard manure or by the use of more leguminous crops as a green manure.

The following table gives the average results of mechanical analyses of the soil and subsoil of this type:

Mechanical analyses of Cahaba fine sand.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18767,18769.....	Soil.....	0.5	4.2	8.4	57.4	16.4	8.5	3.9
18768,18770.....	Subsoil.....	.5	3.6	9.4	57.5	15.2	7.6	5.9

CAHABA SANDY LOAM.

The soil of the Cahaba sandy loam, to a depth of 12 inches, consists of a medium to fine, reddish-brown loamy sand or sandy loam, with a high percentage of fine sand. The surface, when dry, has a grayish appearance. The subsoil, from 12 to 36 inches, is a stiff heavy clay, reddish brown in color when wet, but becoming a yellowish red when dry. Below 36 inches this clay becomes somewhat sandier and less compact. Many small mica flakes are found in both soil and subsoil.

Like the sand, the Cahaba sandy loam is found only in the second bottoms of the Chattahoochee River. Next to the Cahaba clay it is

the most important agricultural type in the river bottoms. It occupies a position intermediate between the Cahaba clay and the Cahaba fine sand, being a few feet higher than the clay and a little lower than the ridges of sand. Its surface as a rule is nearly level, but generally has sufficient slope to be well drained.

Because of the rather loose condition of the soil and its good drainage conditions the type is very easily cultivated. This type was laid down in water during the formation of the second-bottom terraces, which, as stated, were probably formed during the Pleistocene period. The clay subsoil, as is indicated by the color and the large quantities of mica present, was derived chiefly from the Piedmont, while the sandy surface soil is thought to be of later formation and is in part, at least, derived from the near-by upland soils.

The native vegetation consisted of shortleaf pine, gum, and oak, but at the present time practically every acre of this type is cleared and under cultivation. Cotton, corn, oats, and peanuts are the principal crops. Cotton yields about one-third bale per acre, and corn 10 to 12 bushels. Very fair yields of oats are secured, but as they are not thrashed no definite figures can be given.

Undoubtedly the yields could be greatly increased if the land were plowed deeper and organic matter, either in the form of barnyard manure or in the form of green manure, were applied to the fields. This soil should produce an excellent grade of Cuban cigar filler tobacco.

This is a very good soil for general farm purposes, but it has been more or less neglected, as it has been left almost entirely to the care of negro tenants. The value of land of this character ranges from $15 to $25 an acre.

The following table gives the results of mechanical analyses of typical samples of soil and subsoil of this type:

Mechanical analyses of Cahaba sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18771.....	Soil.....	0.3	4.1	21.1	41.0	6.6	16.7	10.0
18772.....	Subsoil.....	.3	2.4	7.1	16.9	5.5	31.5	36.4

GREENVILLE SANDY LOAM.

The soil of the Greenville sandy loam consists of a reddish-brown medium sandy loam about 12 inches deep. The subsoil is a brick-red sticky sand to sandy loam, becoming heavier with depth. Both soil and subsoil contain some coarse sand.

The type is found principally in the southern part of the county, where it is typically developed in the areas northwest of Headland. It occupies level to gently rolling country, and on account of its open texture is a well-drained soil. The subsoil is capable of retaining a relatively large quantity of moisture, which fact, coupled with the light, mellow surface soil, makes this a desirable type both for the staple and special crops.

A moderately rolling shallow or heavy phase is encountered in the southeastern part of the county, which consists of a dark-red or reddish-brown rather heavy sandy loam underlain at a depth of about 6 inches by a stiff, bright-red sandy clay. On some of the steeper slopes the sandy loam covering has been washed away, leaving small patches of clay exposed. When wet this phase is very sticky and it hardens on drying, thus making it more difficult to cultivate than the deeper, lighter phase.

The Greenville sandy loam is closely related to the Orangeburg soils. It has been derived from the materials of the Lafayette formation in the same manner as the Orangeburg soils. The surface soil resembles some phases of the Orangeburg sandy loam, but is always more nearly red in color. In texture the subsoil is somewhat like the subsoil of the Norfolk soils, but in color it closely resembles the subsoil of the Orangeburg sand.

Like the rest of the soils of the county, the Greenville sandy loam is farmed to cotton, corn, and peanuts. Most of the type has been cleared of the original forest of pine and hardwoods and is now under cultivation.

With light applications of fertilizer, the light phase produces from one-third to one-half bale of cotton and from 12 to 25 bushels of corn per acre.

When properly tilled the heavy phase of this type is the most productive of the upland soils, being considered excellent for general farming purposes. It is well adapted to the production of hay, oats, and nearly all other farm crops and is also an excellent peach soil. At present cotton and corn are the only crops grown to any extent. Under the methods in vogue, cotton produces one-half bale and corn 15 to 20 bushels per acre, but this phase of the type can easily be made to yield much larger returns. It has been shown that, with very little extra labor and expense, one bale of cotton per acre can be produced.

Since the stiff clay subsoil of this phase is near the surface, plowing is usually shallower than on the sandier soils, while it is much more essential that soil of this character be plowed deep. By breaking the land to a greater depth erosion will be lessened, while at the same time the water-holding capacity of the soil will be increased and the plants will be enabled to develop a more extensive root system, so that

they will suffer less from drought. If also some system of rotation be adopted that will add humus to the soil, the yields will be greatly improved.

The heavy phase of this type ranges in value from $20 to $25 an acre. The lighter phase can be bought at a lower price.

The following table gives the average results of mechanical analyses of samples of this type of soil:

Mechanical analyses of Greenville sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
Shallow phase:		*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18775, 18777...	Soil.....	1.7	14.5	15.6	27.2	8.8	18.2	13.7
18776, 18778...	Subsoil.....	.7	10.6	10.6	21.8	6.9	13.1	35.9
Light phase:								
18779, 18781...	Soil.....	1.9	19.1	18.1	32.9	8.8	10.4	8.7
18780, 18782...	Subsoil.....	1.7	18.7	15.6	28.1	8.1	10.1	17.4

PORTSMOUTH SANDY LOAM.

The soil of the Portsmouth sandy loam ranges from a grayish medium sand to a black mucky soil. The depth of the surface material varies greatly, but averages 12 inches. Below this depth is a gray, sandy clay streaked and mottled with yellow, which is underlain at 36 to 40 inches by a lighter colored, stiff, compact, sandy clay.

Soil of this character is confined chiefly to the southeastern part of the county, in small, poorly drained areas situated at the heads of small streams. The largest bodies are found a few miles south of Franklin, at the base of the bluff that marks the line of separation between the second bottoms of the Chattahoochee and the adjacent uplands. In wet seasons many small branches heading in the bluff pour their waters into this depression and keep it submerged, but in a dry season the higher portions can be cultivated.

The Portsmouth sandy loam is of sedimentary origin, having been formed from the sands and clays of the Lafayette formation, but its original texture has undergone some changes by the accumulation of large quantities of organic matter.

The topography is level, and as the areas are usually lower lying than the bordering soils they are as a rule poorly drained. When artificially drained the areas are moderately productive, owing mainly to the abundance of organic matter, while on account of the loose porous nature of the soil cultivation is easy.

The native growth consists principally of longleaf and shortleaf pine, black gum, and gallberry bushes.

Only a few of the small and better drained portions of this type are under cultivation. On these the yields are usually light, ranging

from one-fourth to one-third bale of cotton and from 8 to 10 bushels of corn per acre. The area of this soil is limited and it is of little agricultural importance.

The results of mechanical analyses of soil and subsoil are given in the following table:

Mechanical analyses of Portsmouth sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18811	Soil	2.3	18.1	14.3	33.1	12.5	11.8	7.5
18812	Subsoil	3.3	19.3	10.0	32.0	12.5	12.6	10.5

SUSQUEHANNA CLAY.

The soil of the Susquehanna clay consists of a gray fine sand or silty sand having an average depth of 4 to 5 inches. The subsoil is a heavy red clay, very impervious, and having a peculiar greasy feel, the result of finely divided mica flakes. The subsoil may be mottled with gray immediately below the surface or it may grade into a mottled red and gray clay at a depth of 28 to 36 inches. In nearly every case the percentage of gray matter increases with depth, until it finally becomes the predominating color.

This type, as mapped, also includes a few small and nearly level areas where the depth of the sandy surface material is 8 to 10 inches deep, but these areas are so limited in extent that they were not mapped as a separate type.

The Susquehanna clay is stiff and plastic when wet and hardens on drying, making it a difficult soil to cultivate.

Only two bodies of any consequence have been mapped, and both of these are in the eastern part of the county, just west and north of Franklin. In the northern and rougher portions of the county, where the streams have worn deep valleys, narrow strips of Susquehanna clay are found at the base of the slopes and bordering the streams. These areas, however, were as a rule too small to be mapped.

The greater proportion of the Susquehanna clay occurs as very steep or broken areas, from which a large part of the surface soil has been eroded. Owing to its rolling and sloping topography, the surface drainage is excellent, and in fact often excessive and rapid, as is evidenced by the eroded condition of the steeper slopes.

Susquehanna clay has been derived from the sedimentary deposits of a transition period between the underlying Cretaceous limestone and the clays and sands of the next later formation which gives rise to the Norfolk and Orangeburg soils.

Uncultivated areas of this type are covered with a heavy growth of longleaf pine, black-jack, and white oak. Owing to its generally rough and broken nature little of the soil is under cultivation, and only the small and more level sandy areas are used. The only crops grown to any extent are cotton and corn. The yields of the former are one-fourth to one-half bale per acre and of the latter from 8 to 12 bushels.

The average results of mechanical analyses of typical samples of soil and subsoil are given in the following table:

Mechanical analyses of Susquehanna clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18813, 18815.....	Soil.....	0.5	5.4	5.5	39.2	21.0	20.9	7.1
18814, 18816.....	Subsoil.....	.2	1.2	1.1	5.7	9.7	36.2	45.9

OCKLOCKNEE LOAM.

The surface soil of the Ocklocknee loam consists of a fine, mellow, dark-colored fine loam or sandy loam, varying from 8 to 15 inches in depth. The subsoil consists of a drab, yellow, or brown mottled heavy sandy loam or clay loam, which extends to a depth of 3 feet or more. Sometimes the heavy subsoil is lacking, and the subsoil is then a gray, iron-stained sand or light sandy loam.

Owing to its flat surface and low-lying position, the Ocklocknee loam is naturally poorly drained. In wet seasons it is submerged or rendered unfit to cultivate for some time. It is thus a cold, late soil, and crops can not be planted as early as upon the upland types.

This soil is alluvial in origin, the material composing it being made up of the finer particles washed from the upland soils.

The areas have been subjected to more or less swampy conditions, and the soil has incorporated within it a high percentage of organic matter. In color, position, and texture the surface soil of the Ocklocknee loam closely resembles the Swamp areas which it always borders.

Land of this type of soil is very limited in extent, there being but 640 acres in the county. The largest body—cleared in 1908—is found at the junction of Sandy and Abbie creeks. Small areas occur along the Choctawhatchee River.

The greater part of the soil is under cultivation. It is recognized as a strong soil and one that does not require commercial fertilizers. In favorable seasons good yields of corn and cotton are produced. Sugar cane does exceptionally well upon this low-lying soil.

The original forest growth consists of pine, magnolia, bay, gum, and beech.

The results of mechanical analyses of a sample of the soil and subsoil of the Ocklocknee loam are given in the following table:

Mechanical analyses of Ocklocknee loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
18797	Soil	0.6	3.2	3.2	43.9	20.8	20.4	7.6
18798	Subsoil	.4	6.3	5.4	43.3	11.5	17.5	15.6

SWAMP.

The Swamp embraces those soils which have such poor natural drainage that they are covered with water most of the year and unfit for cultivation. The soil is of variable texture. For the most part it is a heavy dark or brown loam or clay loam of variable depth, underlain by a drab or brown iron-stained clay.

The Swamp areas occur as narrow, low-lying strips of land adjoining stream channels. A few small areas and elongated strips occur in the Cahaba clay near Franklin and elsewhere in the southern part of the county. There is no Swamp along the immediate course of the Chattahoochee River.

The most extensive areas occur along the shallow Choctawhatchee River and Abbie Creek. Where Cowpens and Indian creeks empty into the river the swamp area is over 1 mile in width. The surface is flat except where "cut-offs" or channels, through which water flows only in times of floods, have dissected it. These small depressions, in which water remains much of the time, are locally known as "lakes."

The smallest streams, starting from a spring or seepage, have strips of Swamp from the sources along the entire length of their shallow ill-defined channels.

The Swamp areas would undoubtedly prove very desirable land for grass and corn if properly diked and drained. This would involve considerable expense and no one has yet seen fit to make the attempt.

Small cultivated areas occupying a slightly higher position have been mapped as Ocklocknee loam.

The Swamp areas are heavily forested with pine, bay, magnolia, beech, water oak, ash, and a few scattering cypress. Cane, briers, and vines form an almost impenetrable mass bordering many of the streams.

SUMMARY.

Henry County is located in the southeast corner of the State of Alabama, about 125 miles east of Montgomery. It has an area of 570 square miles. The northern part of the county is rolling to hilly; the southern part is gently rolling, with large bodies of nearly level land. The elevation of the former section is about 500 feet or more, and of the latter, 409 feet and less.

Henry County was organized in 1819. The first settlers came from Georgia and South Carolina in 1817. The population of the county is estimated to be from 16,000 to 20,000. The central and southern parts of the county are the more thickly settled.

The principal crop is cotton. It is often grown to the exclusion of the subsistence crops. Corn is grown for home use and local demand, but the production is not sufficient. Oats, sugar cane, sweet potatoes, and peanuts are minor crops.

The growing of cantaloupes and watermelons for local and northern markets, while only in the first stages of development, has given promise of great success. Trucking could be profitably extended to include crops other than those grown at present. This industry so far is confined to Headland and vicinity and to a few small areas near the Central of Georgia Railroad, in the southeast corner of the county.

The rotation of crops is little practiced because of the large acreage of cotton, and not sufficient attention is paid to crop adaptation or to methods of cultivation.

The average size of the farms is about 160 acres. From 20 to 50 per cent of the farms are operated by the owners. The value of farm land ranges from $5 an acre for the most remote areas of sandy land to $50 or $75 for the best type of soil in most favorable locations. The price of land has increased greatly within the last few years.

The soils of Henry County vary from a sand to a clay. This is true of both the upland and the Chattahoochee River bottom soils.

The upland, which comprises nearly all of the county, is occupied by two main soil series—the Norfolk and the Orangeburg. The Norfolk soils have yellow subsoils and the Orangeburg red. Both are of large extent.

Fifteen soil types, including Swamp, were recognized and mapped. All these soils, except Swamp, are used to some extent for general farming.

Sandy loams predominate, there being eight in all; seven are found in the uplands and one is a river-bottom type. These sandy loams constitute the best general-purpose soils of the county. All the crops grown in the county are produced upon these soils, the yields depending upon the cultural methods and fertilization.

Cotton when grown upon soils having a red sandy clay subsoil is less susceptible to the wilt disease.

There are three sand types; two belong to the uplands and one to the bottom lands. These sands are the least productive of all the soils. Crops suffer in droughty seasons. When near markets they should be devoted to trucking.

The Ocklocknee loam occurs in limited areas principally along the Choctawhatchee River. It is a low-lying soil particularly adapted to corn.

Two clay types, one in the uplands and the other a bottom type, were mapped.

The Susquehanna clay, the upland type, is the heaviest soil of the county. The surface generally is broken, and practically none of the type is under cultivation. It is difficult to cultivate, but when properly handled makes a strong grain and grass soil.

The Cahaba clay is a very desirable strong soil, and most of the type is under cultivation. Alfalfa would prove a profitable crop.

The Swamp lands are not cultivated. They afford some pasturage and in some places a valuable timber growth.

More attention should be given to the permanent upbuilding of the soils. Crop rotation should be practiced and more leguminous crops should be grown. The average depth of plowing should be increased on all the soils, except perhaps the sands.

More live stock should be kept and more improved labor-saving farm machinery could be advantageously used.

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U.S. DEPT. OF AGRICULTURE
BUREAU OF SOILS
MILTON WHITNEY, CHIEF

SOIL MAP
ALABAMA
HENRY COUNTY, SHEET

STATE OF ALABAMA
B.B. COMER, GOVERNOR
J.A. WILKINSON, COMMISSIONER
OF AGRICULTURE AND INDUSTRIES

R. 26 E. R. 27 E. R. 28 E. R. 29 E. R. 30 E.

T. 9 N. T. 8 N. T. 7 N. T. 6 N. T. 5 N. T. 4 N.

SOIL PROFILE
(3 feet deep)

- Norfolk gravelly sandy loam — Sl / Sc / Sc
- Norfolk sand — S / S
- Norfolk sandy loam — Sl / Sc
- Norfolk fine sandy loam — Fsl / Sc
- Orangeburg gravelly sandy loam — Sl / Sc
- Orangeburg sand — S / S / S
- Orangeburg sandy loam — Sl / Sc
- Cahaba fine sand — Fs / Fs
- Cahaba sandy loam — Sl / Hc
- Cahaba clay — Sis / C
- Greenville sandy loam — Sl / Sl
- Ocklocknee loam — L / Hsl
- Portsmouth sandy loam — Sl / Sc
- Susquehanna clay — Fs / Hc

LEGEND
S Sand
Sl Sandy loam
Sc Sandy clay
Hc Heavy clay
L Loam
Hsl Heavy sandy loam
Sis Silty sand
C Clay
Fs Fine sand
Fsl Fine sandy loam

LEGEND
- Norfolk gravelly sandy loam — Ng
- Norfolk sand — Ns
- Norfolk sandy loam — Nl
- Norfolk fine sandy loam — Nf
- Orangeburg gravelly sandy loam — Og
- Orangeburg sand — Os
- Orangeburg sandy loam — Ol
- Cahaba fine sand — Cf
- Cahaba sandy loam — Cs
- Cahaba clay — Cc
- Greenville sandy loam — Gl
- Ocklocknee loam — Oc
- Portsmouth sandy loam — Ps
- Susquehanna clay — Sc
- Swamp — S
- Gravel areas

Soils Surveyed by Grove B. Jones, of the U.S. Department of Agriculture, and E. S. Pace, of the Alabama Department of Agriculture and Industries, assisted by H.L. Westover.

BASE MAP IN COOPERATION WITH THE U.S. GEOLOGICAL SURVEY

Scale 1 inch = 1 mile

Field Operations
Bureau of Soils
1908.

JULIUS BIEN & CO. LITH. N.Y.